

## Other Alcohol Beverage and Nonbeverage Product Methods

The table shown below lists the references and methods currently used in the Scientific Services Division Laboratories for alcohol-related matters *other than* validation of calorie, fat, carbohydrate, and protein statements on alcohol beverage labels and advertisements. The table indicates whether the method listed is appropriate for distilled spirits, malt beverages, wine, or nonbeverage alcohol products (NBA).

Please note: As technology evolves and/or matrices change, we will update these methods. Please check this Website for the most current version of TTB's Official Methods.

Analyte(s)	Product Type	Technology	Reference
Acetic acid, Lactic, Citric acid	Wine, Distilled Spirits	GC, HPLC	AOAC Official Methods of Analysis 968.09, 972.10 (17th Ed); Am.J.Enol.Vitic.54:1,2003; LC-GC 16:12, 1998; TTB Official Method
Acetic acid, Propylene Glycol, Glycerol, Benzaldehyde	NBA	GC, HPLC	AOAC Official Methods of Analysis 968.09, 972.1 (17th Ed); Am. J. Enol. Vitic. 54:1, 2003; LC-GC 16:12, 1998; TTB Official Method
Alcohol	Wine, NBA, SDA, Malt Beverages	Distillation, GC	AOAC Official Methods of Analysis 920.57, 920.58, 950.13, 982.10, 984.14 (17th Ed); TTB Official Method
Alcohol	Wine, NBA, SDA, Malt Beverages, Distilled Spirits	Distillation, Densitometer	AOAC Official Methods of Analysis 920.47, 942.06, 945.07, 982.10, 983.12 (17th Ed.); ASBC Official Method Beer-4; 27CFR part 30
Apparent Specific Gravity	Wine, NBA, Distilled Spirits	Density Meter	AOAC Official Methods of Analysis 950.28, 982.10 (17th Ed)
Arsenic	Wine	Graphite Furnace AA	At. Spectroscopy, 22 (2), 280-283 (2001); TTB Official Method
Asaraone (Beta)	Wine	Gas Chromatography	AOAC Official Methods of Analysis 977.09 (17th Ed)
Aspartame	Distilled Spirits	HPLC	TTB Official Method
Ash	Wine, NBA, Distilled Spirits, Malt Beverages	Muffle Oven	AOAC Official Methods of Analysis 920.54, 920.67, 950.14 (17th Ed); 920.48 (15th Ed); ASBC Official Method Beer-14
Babcock Test	SDA, NBA	Babcock Test	AOAC Official Methods of Analysis 942.08B, 955.17 (17th Ed)

Bitterness	Malt Beverages	Spectrophotometry	AOAC Official Methods of Analysis 970.16 (17th Ed); ASBC Official Method Beer-23A
Cadmium	Wine	Graphite Furnace AA	Micr. Chem. Journal, 56, 221-228 (1997); TTB Official Method
Caffeine	Distilled Spirits	HPLC	JAOAC 72, 614-618 (1989); TTB Official Method
Calories	Malt Beverages		AOAC Official Methods of Analysis 971.10 (17th Ed); ASBC Official Method Beer-33
Caramel	Distilled Spirits	HPLC	JAOAC, 63, 1310-1313 (1980); TTB Official Method
Carbohydrates	Malt Beverages		AOAC Official Methods of Analysis 979.06 (17th Ed); ASBC Official Method Beer-6
Carbon dioxide	Wine	Enzymatic	AOAC Official Methods of Analysis 964.09 (17th Ed); TTB Official Method
Carbon dioxide	Wine	Titrimetric	AOAC Official Methods of Analysis 988.07 (17th Ed)
Copper	Wine, Distilled Spirits, Malt Beverages	Graphite Furnace AA	At. Spectroscopy, 18 (5), 156-159 (1997); TTB Official Method
Coumarin	Wine, Distilled Spirits	Gas Chromatography	AOAC Official Methods of Analysis 976.12 (15th Ed); TTB Official Method
Cyanide/Ferrocyanide	Wine	Ion Chromatography	TTB Official Method
Decarbonation	Malt Beverages		AOAC Official Methods of Analysis 920.49 (17th Ed); ASBC Official Method Beer-1
Ethanol for Solid Products	NBA	Distillation, GC	AOAC Official Methods of Analysis 920.57, 920.58, 950.13, 982.10 (17th Ed); TTB Official Method
Ethyl Carbamate	Wines, Distilled Spirits	GC	AOAC Official Methods of Analysis 993.04, 994.07 (17th Ed)
Ethyl Carbamate	Wines, Distilled Spirits	Solid Phase Extraction/Multi-dimensional GC	TTB Official Method
Extract	Wine	Density Meter	AOAC Official Methods of Analysis 920.57, 920.62 (17th Ed)
Fill	Malt Beverages	Gravimetric	AOAC Official Methods of Analysis 990.17 (17th Ed); ASBC Official Method Fills-1

Fill	Wine, Distilled Spirits	Density Meter, Analytical balance	TTB Official Method
Fill	Wine, Distilled Spirits	Volumetric	ATF Gauging Manual; TTB Official Method
Free Sulfur Dioxide	Wine	Aeration-oxidation	Am.J.Enol.Vitic., 29:161,1978; TTB Official Method
Fusel Oils (Higher Alcohols) & Ethyl Acetate	Wine, NBA, Malt Beverages, Distilled Spirits	Gas Chromatography	AOAC Official Methods of Analysis 968.09, 972.10 (17th Ed); JAOAC 64, 1981, 186-190; TTB Official Method
Lead	Wine, Malt Beverages, Distilled Spirits	Graphite-Furnace AAS	TTB Official Method
Methanol	Wine, NBA, Distilled Spirits	Gas Chromatography	AOAC Official Methods of Analysis 972.11(17th Ed), TTB Official Method
Obscuration	NBA, Distilled Spirits	Evaporative method	JAOAC, 69:4 1986 pp. 709-7111
Particulate Matter	Wine, Distilled Spirits	binocular microscope/ membrane filter	ATF Industry circular 72-31
pH	Wine, NBA, Distilled Spirits	pH Meter	AOAC Official Methods of Analysis 960.19 (17th Ed)
Potassium/KCl	Wine, Malt Beverages	AA	Methods for Analysis of Musts & Wines 1980; TTB Official Method
Propylene Glycol	Distilled Spirits	Gas Chromatography	JAOAC 58, No.6, 1975; TTB Official Method
Protein	Malt Beverages	Kjeldahl	AOAC Official Methods of Analysis 920.53; ASBC Official Method Beer-11A
Real Extract	Malt Beverages	Evaporative method	AOAC Official Methods of Analysis 945.09 (17th Ed)
Residual Sugars	Wine	HPLC	TTB Official Method
Saccharin	Distilled Spirits	HPLC	TTB Official Method
Selenium	Wine	Graphite Furnace AA	Am. J. Enol. Vitic., Vol. 49, No.2, 115-118 (1998); TTB Official Method
Sodium/Sodium Chloride	Wine, Malt Beverages	AA	Methods for Analysis of Musts & Wines 1980; TTB Official Method

Solids	NBA, Distilled Spirits	Evaporative method	AOAC Official Methods of Analysis 920.47, 940.09, 950.27 (17th Ed)
Sorbic Acid/Benzoic Acid	Wine, NBA, Distilled Spirits	HPLC	AOAC Official Methods of Analysis 909.02, 967.15, 979.08, 983.16, 990.25, 994.11 (17th Ed); Hewlett- Packard Application Note AN232-4; TTB Official Method
Specific Gravity	Malt Beverages	Instrumental	AOAC Official Methods of Analysis 988.06; ASBC Official Method Beer-2
Sugars	NBA	HPLC	TTB Official Method
Synthetic Color	Distilled Spirits, NBA	HPLC	AOAC Official Methods of Analysis 980.24 (17th Ed),
Synthetic Color	Wines, Distilled Spirits, Malt Beverages, NBA	Solid Phase Extraction/Thin- Layer Chromatography	JAOAC, 77:5, 1994 pp. 1335-37
Total Acids	Wine, NBA, Distilled Spirits, Malt Beverages	Auto Titrator	AOAC Official Methods of Analysis 945.08, 950.15, 962.12 (17th Ed); TTB Official Method
Total Acids	Malt Beverages	Potentiometric	AOAC Official Methods of Analysis 950.07B; ASBC Official Method Beer-8A
Total Acids	Distilled Spirits	Spectrophotometry	AOAC Official Methods of Analysis 956.02 (17th Ed)
Total Sulfur Dioxide	Wine, Malt Beverages	Aeration-oxidation	Am.J.Enol.Vitic., 29, p.161,1978; TTB Official Method
Vanillin, Ethyl Vanillin, Coumarin, Heliotropin	NBA, Distilled Spirits	HPLC	AOAC Official Methods of Analysis 909.02, 945.98, 964.10, 966.12, 966.13, 967.15, 983.16 (17th Ed); Hewlett-Packard Application Note AN232-4; TTB Official Method
Visual Examination	Wine, NBA	Physical Examination	AOAC Official Methods of Analysis 930.19, 950.12 (17th Ed); TTB Official Method
Volatile acids	Wine	Cash Still, Segmented Flow	AOAC Official Methods of Analysis 964.08 (17th Ed); Astoria Pacific A- 470; TTB Official Method